

Bioarchaeology in Southeast Asia and the Pacific: Newsletter

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Welcome to the seventh annual newsletter designed to update you on the latest news in the field of bioarchaeology in Southeast Asia and the Pacific. Please circulate to your colleagues and students and email me if you wish to be added to the email recipient list.

In this issue, can I particularly draw your attention to the announcement of the 2nd **Southeast Asian Bioarchaeology Conference** to be held in Khon Kaen, January 2012. More details below...

News

WESTERN PACIFIC

From: Professor Michael Pietrusewsky
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Subject: *Mariana Islands*

This past year, Michael Pietrusewsky and students analyzed skeletons from two recent CRM projects on the island of Saipan in the Northern Mariana Islands.

(1) . Pietrusewsky M. Douglas MT. 2010. The osteology of the human skeletons from the Reconstruction of Route 202 with Drainage Improvements Project, Tinian, Commonwealth of the Northern Mariana Islands. Final Report Prepared for: Swift and Harper Archaeological Resource Consulting, Saipan, MP 96950. October 29, 2010.

Abstract

Human skeletal remains from eleven burials selected from a total of twenty-one burials of prehistoric (Chamorro) cultural origin discovered during archaeological monitoring associated with the Reconstruction of Route 202 with Drainage Improvements Project (Tinian Route 202 Project) on Tinian Island, Commonwealth of the Northern Mariana Island are described. Except for one burial, the skeletons were reasonably or relatively complete. The preservation of four skeletons was described as poor while the remainder were classified as excellent, good, or fair. The skeletons represent one child (3-5 years) and ten adults. Of the adults that could be assigned a sex, six are male and four are female. Four adults died as young adults and five lived to middle-age. There were no old adults. Metric and non-metric observations recorded in the skulls, infracranial skeletons, and teeth are summarized. Cranial, dental and skeletal morphology are consistent with Mariana Island skeletal series. Overall, the oral-dental health in the adults is good, with low rates of antemortem tooth loss, dental caries, dental abscessing, and dental enamel hypoplasia. However, moderate tooth wear was observed in the adult teeth. Two deciduous teeth exhibit dental caries associated with enamel hypoplasia. The estimated

stature for adult males ranges from 166 - 177 cm and for females the range is 155 - 159 cm. An unusually high number of paleopathological conditions were observed in these selected skeletal remains from the Tinian Route 202 project including evidence of treponemal (yaws) disease and possible parasitic infection in one individual, fracture of the ribs complicated by infection and infection of the proximal femur of another individual, thumb fractures with traumatic osteoarthritis, lumbar spondylolysis, and congenital fusion of the pedal phalanges. The presence of occipital superstructures further suggests an active and strenuous lifestyle for males and females from the Tinian Route 202 project. Some extra-skeletal calcified fragments found associated with one adult burial suggests dystrophic calcification of an abscess, pseudo-aneurysm, and less likely a hydatid cyst.

(2). Pietrusewsky M. 2010. The osteology of human skeletal remains from the Reconstruction of Route 201 with Drainage Improvements Project, Tinian, Commonwealth of the Northern Mariana Islands. Final report prepared for: Swift and Harper Archaeological Resource Consulting, Saipan, MP 96950. December 3, 2010

Abstract

Disarticulated human skeletal remains discovered in December 2009 during archaeological monitoring as part of the Reconstruction of Route 201 with Drainage Improvements Projects on Tinian, CNMI, are described. The remains are likely from a prehistoric site located near the House of Taga that was impacted several times during the Historic Period. Although postmortem damage was evident in these remains, preservation was good to excellent. After identification and mending of postmortem breaks the remains were inventoried. Based on the greatest number of unduplicated skeletal elements, the Minimum Number of Individuals is estimated to be five (4 adults and 1 subadult). The majority of the skeletal elements are from two adult males. With the exception of ribs, all parts of the skeleton are represented. Very few bones were complete. Limited observations of metric and nonmetric variation, including paleopathology, were recorded in these remains. Evidence of an occipital superstructure, betel stained teeth, spondylolysis (stress fracture in lumbar region), and treponemal infection are consistent with Chamorro ancestry. Possible healed fractures in a humerus and clavicle were also observed in these remains.

PACIFIC

From: Dr Hallie Buckley
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Subject: *Continued Fieldwork on Uripiv Island, Vanuatu*

In 2010 further excavation of the Lapita cemetery site on Uripiv Island was conducted by Dr Hallie Buckley and Dr Frederique Valentin with the assistance of Buckley's students Rebecca Kinaston and Aimee Foster. This excavation was conducted under the direction of Dr Stuart Bedford of The Australian National University and the Malakula Cultural Centre. To date, 8 Lapita, 18 post Lapita and 2 Historic/proto-Historic burials have been excavated from this. All Lapita burials are infants and young children buried in the ancient sand beach while the post Lapita burials include infants, young children and adults interred within hard dark sandy sediment rich in coral gravel. Evidence of health and disease parameters of these individuals will be reported at the upcoming Lapita Conference which



is to be held in June 2011 in Apia, Samoa. A publication reporting the initial findings of health and disease and burial practices both Uripiv and Vao islands is currently 'in press' with the *Journal of Pacific Archaeology* and due out in the July issue. A further excavation of the Uripiv site is planned for August/September of 2011 as part of a Marsden funded project.

Dr Rebecca Kinaston has been appointed as Post Doctoral Fellow to work on the Marsden funded project. Specifically, Dr Kinaston will undertake stable isotope analyses of the human skeletal samples from Uripiv and faunal material from Uripiv and Teouma.

Fig. 1: Ms Aimee Foster (left) and Dr Rebecca Kinaston recording a disturbed burial feature on Uripiv Island.

From: Dr Hallie Buckley
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Subject: *Repatriation of human skeletal remains from New Zealand Maori (koiwi tangata)*

A collection of around 65 individuals from the *Kati Huirarapa Runanga Ki Puketeraki* were received at the Anatomy Department early in 2011 at the request of the *rununga* (tribal group) for macroscopic analyses prior to reburial in June/July 2011. Dr Hallie Buckley is coordinating this project and is working in collaboration with Associate Professor Nancy Tayles and Dr Sian Halcrow.

From: Dr Frederique Valentin
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Subject: *Fieldwork at Teouma, Vanuatu*

In June-July 2010 the final field season of excavations at the Teouma site in Vanuatu were undertaken, directed by Stuart Bedford and Matthew Spriggs from The Australian National University in co-operation with the Vanuatu Cultural Centre. During this field-season excavation of the Lapita cemetery was extended towards the south and the north-west. Dr. Frédérique Valentin from CNRS-UMR7041-Equipe Ethnologie préhistorique and her students from Paris Panthéon-Sorbonnes University, Florence Allière and Pamela Nunés, discovered 5 further adult burials which were excavated following the recommendations and principles of 'Anthropologie de terrain' methodology. Further excavations carried towards the east of the cemetery, close to the midden area, resulted in the recovery of two baby burials.



Fig. 2: Teouma Lapita cemetery burial (B66 and 67).

Including these new discoveries, the Teouma Lapita cemetery excavations have now revealed 9 baby burials, 59 incomplete adult inhumations along with 9 secondary deposits and a number of scattered bones across the burial area. Mortuary practices at the site are spectacular, revealing behavior that is both ordered and complicated. While babies were apparently treated in a simple manner, adult funerals followed a structured protocol of which several sequences were identified, from the preparation of the body, the deposition in the pit in various and sometime unusual positions as illustrated in Figure 2, the removal of certain bones, the addition of human bones and Lapita pots sometimes containing human remains, placed in and between the graves. Several publications describing aspects of these mortuary practices have been published (Valentin *et al.* 2009, 2010, Bedford *et al.* 2009, 2010) or are in press (Valentin *et al.* 2011). (*Eds note: Please see "RECENT PUBLICATIONS" for full details of these articles*).

VIETNAM

From: Michael Francken (University of Tuebingen, Germany), Simone Kraus (University of Freiburg, Germany), Joachim Wahl (Landesamt für Denkmalpflege, Konstanz, Germany)

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Subject: *The skeletal remains of Gò Ô Chùa (Vietnam)*

During several field seasons, since 1997, 68 body burials and seven jar burials have been found at the bronze age salt-boiling site of Gò Ô Chùa, Long An Province, Vietnam. Calibrated dates for the site indicate that most of the burials belong to a period between the 4th – 1st century BC and therefore represents one of the biggest skeletal samples of this time period so far excavated in this region of Vietnam.

Current analyses include the remains of 61 individuals, the majority in excellent preservation (fig.3). Single body burials in clear grave cuts and in elongated position on their back prevail (fig.4), with the head orientated to the southeast. Some of the seven jar burials contained the remains of infants. Despite the fact that all inhumations were densely packed only a few commingled burials occurred.

The ratio between both genders is balanced showing 24 female and 24 male individuals. Due to the small number of subadult individuals a representative age distribution cannot be assumed. Only ten skeletons belong to the subadult group, most of them fetuses. Individuals within the range of 10-14 years are completely absent.



Fig. 3: Analyses of skeletal remains at the museum in Tan An (photo by A. Reinecke)

The body height estimation of this sample is within the range of other prehistoric sites (Pietrusewsky & Ikehara-Quebral 2006) of this region and illustrates an explicit sexual dimorphism. Using the Trotter and Gleser formula (Trotter & Gleser 1958 and Trotter 1970) the mean female body height is at 157.6 cm and the mean male is at 166.3 cm. With one exception the individual data of the women present lower values than the minimal body height of the men.



Fig. 4: Preparation of a burial in Gò Ô Chùa by members of the excavation team (photo by A. Reinecke)

Several individuals showed indications of infectious diseases while only few indicators of malnourishment occurred in this series. *Cribra orbitalia* and *dental enamel hypoplasia* are present but rare. Due to the excellent preservation a detailed analysis of the dental pathologies was possible, including the recording of dental calculus, periodontal diseases, carious lesions and antemortem tooth loss. Remarkable is a low overall frequency of dental pathologies without any

sexual predisposition. Osteoarthritis and other degenerative alterations are in most of the cases age-progressive and reflect the usual wear and tear of living. The localization of occupational stress markers like fractures, inflammation or *Schmorl's nodes* on the spine and fractures on the upper limb region suggest that parts of the population from Gò Ô Chùa experienced heavy physical stress or suffered from injuries.

A more detailed analysis of the human remains from Gò Ô Chùa is currently in progress and will be published in the near future in combination with the results of the archaeological analyses.

References:

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- Trotter, M. and G. C. Gleser (1958). "A re-evaluation of estimation of stature based on measurements of stature taken during life and long bones after death." *American Journal of Physical Anthropology* 16(1): 79-123.
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THAILAND

From: Associate Professor Nancy Tayles
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Subject: *Ban Non Wat 2002-2007 Project Update: New Storage Facilities*

The work continues on the post-excavation analysis of the large sample of ~625 skeletons from the 2002-2007 excavations at the site of Ban Non Wat, in the upper Mun River valley in Northeast Thailand. The collection dates from c.1750 BC to c.500AD and has been previously reported in the Newsletter so we won't go into further details here.

These skeletons are stored in the town of Phimai, Nakhon Ratchasima province, Northeast Thailand, where they have very recently been relocated under the supervision of Dr Rachanie Thosarat from temporary storage to a brand-new permanent storage building in the grounds of the Regional Office of the Fine Arts Department. This building will eventually house a significant proportion of the collections of human skeletal remains from Thailand.



Fig. 5: The FAD storage building at the Fine Arts Department in Phimai, Northeast Thailand

The analysis of such a large collection is a major undertaking and will continue for some time to come. Currently all except the final ~120 'burials', which represent the least well-preserved adult skeletal remains from the later (iron age) deposits at the site, have been catalogued, with age and sex estimates complete. The final stage of this data collection should be completed within the next six months by Nancy Tayles and graduate students. In the meantime, a number of collaborators are working on aspects of the analysis with several publications pending, and postgraduate students have completed or are progressing with their research projects on the collection:

- Dr Sian Halcrow: infant and child health, dietary isotopes
- Dr Kate Domett, James Cook University, Townsville: osteoarthritis
- Prof Alex Bentley, Durham/Bristol UK: isotopes and migration
- PhD:
 - Angela Clark – sexual dimorphism
 - Stephanie Shkrum – dental health
 - Aimee Foster – upper limb activity
 - Helen Cekalovic – Bronze-iron age transition (JCU)
 - Charlotte King – migration, isotopes and dental morphology (Durham)
 - Katharine Cox - migration, isotopes and dental morphology (completed 2009)
- MSc
 - Flynn Fletcher-Dobson: Burial ritual and health in infants and children
 - Nathan Harris: Field anthropology (completed 2010)
 - Kimberly Curtis: Stature and LEH (completed 2007)
 - Anna Willis; Field anthropology (completed 2006)

- BA Hons
 - University of Otago
 - Nicola McLeod 2010 Pathology of a cluster of Bronze Age individuals
 - Patrick Browne 2010 Pathology of a cluster of Bronze Age individuals
 - Stacey Ward 2009 Copper/lead poisoning
 - Charlotte King 2009 Diagenesis
 - James Cook University
 - Caitlin Evans 2010 Lower limb Osteoarthritis

From: Jennifer Newton, Dr Kate Domett
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Subject: *Ban Non Wat 2010-2011 Excavations and New excavations*

Excavations continued at Ban Non Wat during the months of December 2010- February 2011 under the direction of Dr. Nigel Chang in collaboration with the Thai Fine Arts Department. Continuation of work on the previous year's excavation squares occurred in the far eastern edge of the site at the edge of the moat. An interesting find this year was during excavations on the western edge of the mound where a number of water buffalo footprints were exposed. Cast moulds were made of the footprints.

A new excavation square was opened at the site of Nong Hua Raet, a village located a few kilometres from Ban Non Wat. Survey was undertaken at the village site of Prang Pon Song Kram, also located a short distance from Ban Non Wat, for a potential future excavation.

No burials were uncovered during this season, which allowed for completion of analysis for previous years excavated human remains. The number of burials excavated from the 2007-2011 Ban Non Wat project still remains at 63.

CAMBODIA

From: Jennifer Newton, Dougald O'Reilly, Louise Shewan, Kate Domett
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Subject: *Excavations at the Late Iron Age site of Phum Sophy – Cambodia*

A second excavation at Phum Sophy in Northwest Cambodia was undertaken in December 2010, led by Dr. Dougald O'Reilly of the Australian National University (Project leader and archaeologist). Assisting with the excavation and removal of human skeletal remains were Dr. Louise Shewan of University of Sydney (isotope analysis), Jennifer Newton of James Cook University (PhD candidate in bioarchaeology), and members from the Cambodian Ministry of Culture and Fine Arts (MoCFA). The excavation was part of the project: *History in Their Bones: A diachronic, bio-archaeological study of diet, mobility and social organization in Cambodia*.



Fig. 6: Burial 6, a child from Phum Sophy.

The 2010 excavation took place in the village in the yard of a resident's property, believed to be undisturbed. Previous excavation of Phum Sophy had seen extensive looting of the site. The excavation square measured 5 x 3 metres, and yielded many artefacts including pottery, beads, bronze objects (such as bells), and iron tools. A total of 11 individuals were excavated from the site, consisting of six adults (one burial had co-mingled remains of at least two individuals), and five subadults. Out of all the burials, only one subadult was in a flexed position, located in the south-western corner of the unit, while all others lay flat. The burials had a large number of artefacts and pottery associated with them, in particular two adult burials. One adult (possibly female) was buried with bronze bangles covering the forearms, and lower legs, and had agate beads

(over 100) buried around the pelvis and head. Another, possibly male, was buried with bronze bells, iron implements, agate beads, and an object made of a type of stone located near the neck with a drilled hole going through the length of the object, possibly a necklace. These new remains will be analysed in detail later this year.

From: Dr Andreas Reinecke (German Archaeological Institute) and Vin Laychour (Memot Centre - Phnom Penh)

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Subject: *The third excavation campaign at the Iron Age cemetery Prohear, Prey Veng province.*

During February and March 2011 excavations continued at Prohear in cooperation between the German Archaeological Institute and the Memot Centre, Ministry of Culture and Fine Arts, Phnom Penh. Participants in this third campaign were, besides the authors, Seng Sonetra from the Memot Centre, ten students of Royal University of Fine Arts in Phnom Penh and Simone Kraus, bioanthropologist from the University of Freiburg/Germany.

Two new excavation units E and F were uncovered at both ends of the former excavation area (units A-D) directly on the main road of the village (see *Bioarchaeology in Southeast Asia and the Pacific: Newsletter Issue No 6, April 2010, 7-11*). Unit E (32.6 m²) is the extension to the east, unit F (14.2 m²) is situated to the west (Fig. 7). To date, a length of 58 m of the road with 168 m² have been excavated. The upper find layer is in a depth of 0.6 m with scattered ceramic sherds covering the burials that may be from a post-cemetery occupation. 14 graves in unit E (No. 53-66) and 10 (67-76) in



Figure 7: Excavation of Unit F at Prohear in February/March 2011 (photo by Andreas Reinecke).

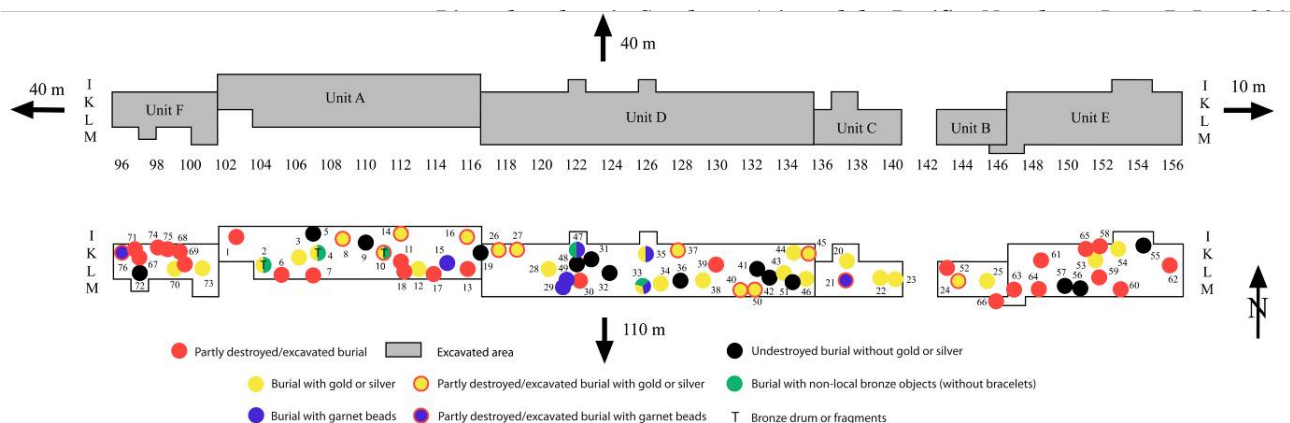


Fig. 8: Overview of the excavation units A-F (drawing by Andreas Reinecke).

unit F were unearthed in a depth between 0.70-1.35 m. The material of 76 graves is presently undergoing analysis, including about 100 gold and silver ornaments.

Among the special finds of the third campaign are two gold wire bracelets (Fig. 10), some hair spirals and a finger ring made from gold. Of great interest is also a melon-shaped light blue bead, possibly made of faience. Beside the skull in burial 76, a pair of stick-like green glass objects with a central loop was found lying like a cone-shape symbol. The objects are 14 cm long and are reminiscent of smaller earrings made from gold that are published as “proto-classic period” gold ornaments from Java island (*J. Miksic, Old Javanese Gold, Singapore 1990, 68*). Similar glass objects are known from northeastern Thailand but were never found in a documented burial context. Added to the 9 radiocarbon dates of the former discovered burials, 10 recently taken samples are in progress by Bernd Kromer (Heidelberg), and will provide a better founded chronology of this burial site.

In November 2010, some one hundred of the most precious and restored objects from Prohear have been transferred to the National Museum in Phnom Penh for an permanent exhibition that was opened at the end of November 2010. A second exhibition of another find collection from Prohear has been set up in the Prey Veng provincial museum since March 2011. Publications for download and news about Prohear site are available at the website:

http://www.dainst.org/index_126569e8ebba14b54846001c3253dc21_en.html.



Fig. 9: Burials in the deepest level (about 1.35 m) in unit E (photo by Andreas Reinecke).



Fig. 10: Gold wire bangles from burial 53 (photo by Andreas Reinecke).

From: Simone Krais (University of Freiburg, Germany) and Seng Sonetra (Memot Centre - Phnom Penh, Cambodia)

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Subject: *The skeletal remains from Prohear*



Fig. 11: The Prohear excavation team.

In February and March 2011, the excavation at the Prohear site in Prey Veng province, Cambodia, continued. In this campaign a total of 24 new burials were excavated. Six of them still contained human remains. Additionally, during restoration of artefacts from the 2008 and 2009 excavation campaigns, we found small pieces of human bone preserved on some metal offerings including evidence for four further individuals. This brings the total number of burials that contained human remains up to 42, while altogether 76 burials were excavated during all three campaigns (2008, 2009, 2011). The orientation of the new burials mostly supported the results from 2008 and 2009 with an orientation in south-south-west direction.



Fig. 12: Restored remains from burial 49.

The anthropological results of the six newly excavated burials fit with the analyzed human remains from the 32 burials of the 2008 and 2009 excavation campaigns. The preservation of these remains was very poor: around or even less than 5 percent of skeletal tissues remained, mostly tooth cusps and some bone fragments with eroded surfaces, of most of the six new burials. Due to these conditions, only a few parameters of the huge range of anthropological methods and possible results were achieved. Neither sex estimations nor osteometric data collection could be done. In a few cases we were able to estimate the age at death of the individual, mostly by tooth wear for adult individuals or the existence of certain teeth as

indicators for age at death of subadult individuals. From the six new burials, two were subadults, one adult and three individuals could only be allocated as not very young children. The remains found on the metal objects gave no reliable evidence of age at death.

Thus, in total, the demographic parameters of Prohear have shifted to 13 individuals (31 %) being subadult (subadult here is referred to the age of 0-19 years according to German standards), 11 individuals (26.2 %) being adult, 14 individuals being grouped into age classes between adult and subadult, and four individuals (9.5 %) - represented by the small pieces of bone on the restored metal objects - having no evidence for an age at death estimation. For the six new burials only very few cases of dental pathologies (caries and tooth wear) were documented while the poor preservation and the strong erosion of the bone surfaces made identification of most pathological conditions impossible.

SOUTHEAST ASIA

From: Simone Kraiss (University of Freiburg, Germany) and Michael Francken (University of Tübingen, Germany)

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Subject: *Tooth blackening at the Bronze Age sites of Prohear (Cambodia) and Go O Chua (Vietnam)*

In March and April 2011, we conducted research on staining we found on human teeth at the sites of Prohear (south-west Cambodia) and Go O Chua (southern Vietnam). In the earlier process of anthropological analysis of the human remains it was obvious that the staining on the tooth surface of a great amount of the individuals from both sites must be the result of intravital processes, whether deliberate or unintentional, and was not the result of postmortem biochemical processes within the soil. Thus we started to document and describe the staining patterns on the teeth and gathered information about the affected individuals to find a culturally fitting interpretation.

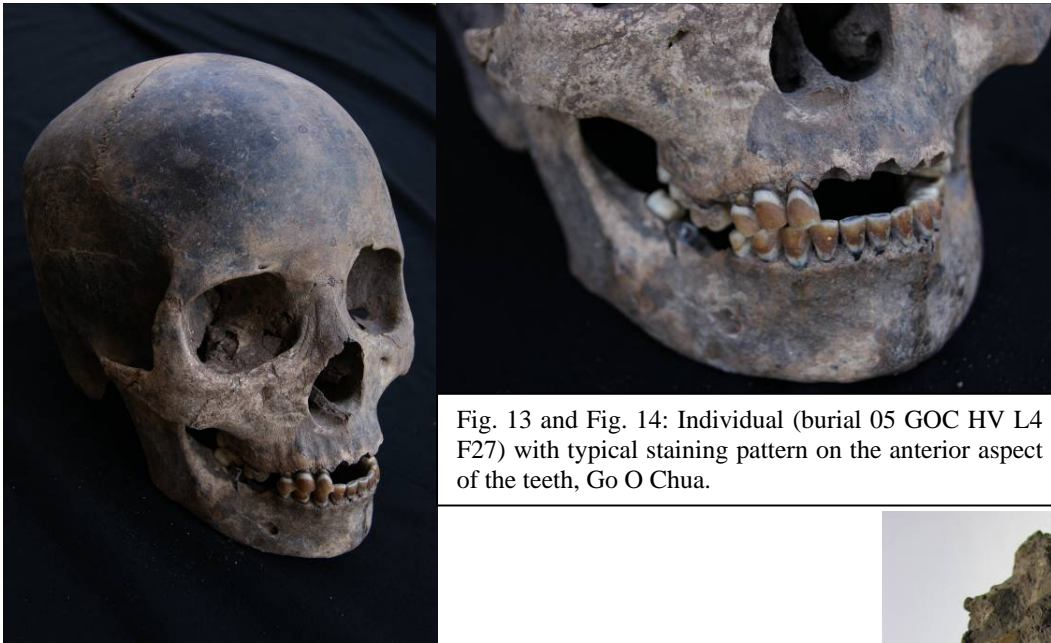


Fig. 13 and Fig. 14: Individual (burial 05 GOC HV L4 F27) with typical staining pattern on the anterior aspect of the teeth, Go O Chua.

Due to the poor preservation of the human remains from Prohear it was very difficult to find staining patterns for this site. In contrast, preservation at the site of Go O Chua was excellent, and it is therefore much better suited for the evaluation of the staining patterns. Besides some outliers and very interesting individual staining patterns, we were able to identify clear trends in the distribution of the staining. In most cases the labial/buccal aspect of the incisors, canines and premolars of the upper and lower jaw were stained. This indicates in most cases a deliberate staining of the teeth, instead of an unintentional staining, as for instance by the chewing of betel nut, which is very common in nowadays Southeast Asian and is even known from Prehistoric sites. A similar phenomena exhibiting these intentional staining patterns has already been described for the Bronze Age site of Nui Nap in



Fig.15: Similar staining pattern from excellent preserved dentition (burial 33), Prohear.

northern Vietnam

(Oxenham et al. 2002), and it is quite possible that the staining found in the sites of Prohear and Go O Chua are based on similar or identical cultural habits. Detailed analyses are under progress and the results will be published as soon as possible.

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2002 Identification of Areca catechu (Betel Nut) Residues on the Dentitions of Bronze Age Inhabitants of Nui Nap, Northern Vietnam: *Journal of Archaeological Science* 29:909-915.

From: Drs Siân Halcrow, Kate Domett, Dougald O'Reilly, Louise Shewan,

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Subject: *New funding for further work in Cambodia and Thailand "From Paddy to Pura: Origins of Angkor Project"*.

Recently, Drs Dougald O'Reilly and Louise Shewan were awarded an Australian Research Council Grant that will be used to examine emerging sociopolitical complexity in Cambodia and Thailand prior to the rise of the Angkorian state. Archaeological research is being undertaken on a regional scale investigating sites from the Iron Age to the Historic Period. Two sites in Thailand will be excavated, Ban Lum Kleua Chut and Ban Suai in Nakhon Ratchasima province and two sites in Cambodia, Phum Lovea and Prei Khmeng near Angkor. The proposed research is designed to examine emerging socio-political complexity in Cambodia and Thailand through the analysis of new and extensive excavated data. It will focus on those aspects of human endeavour that accompany the rise of social complexity. These factors incorporate the control of trade and exchange, rising militarism, the attainment of status through the deployment of surpluses, and privileged access to vital resources. The project will also examine issues concerning aspects of population dynamics, health, human mobility and the genetic relationship between the occupants of sites at the heart of Angkor and on its peripheries. Partner investigators Drs Kate Domett and Siân Halcrow will carry out the bioarchaeological research from the sites being investigated, with excavations starting this year.

Collaborators: Dr Dougald J O'Reilly, Dr Louise G Shewan, Dr Damian H Evans, Dr Kathryn M Domett, Prof Charles F Higham, Prof Elizabeth (Lisa) A Matisoo-Smith, Dr Thomas F Higham, Dr Sian E Halcrow, Dr Thomas O Pryce, Prof Rethy Chhem

SOUTH ASIA

From: Dr Gwen Robbins Schug

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Gwen Robbins Schug recently completed fieldwork on a new project, the Bioarchaeology of Harappa: Anthropological Research And Training (BHARAT). This project seeks to understand life at one of the least well known cities of South Asia's Indus Civilization using the human skeletal material from excavations at three Harappan cemeteries. The goals of this project are to 1) understand who was buried in the cemeteries at Harappa, what the demographic profiles look like, and whether there are systematic differences in the composition of the burials in the cemeteries; 2) examine the heterogeneity of frailty (health status of individuals who died in the perinatal, infant and childhood life stages, as

opposed to the population of adult skeletons); 3) construct a pathological profile for the Harappan skeletal material, specifically focused on the presence and prevalence of infectious diseases; and 4) examine evidence for skeletal trauma--accidental injuries, interpersonal violence, and medical intervention. Dr. Schug and former student (Kelsey Gray) finished data collection on the assemblage of approximately 200 individuals from Harappa in June, 2011. The first publications will be submitted and presentations of results will occur in Fall, 2011. Some of these results will be presented at an invited session at AAA in Montreal, November 2011 on the topic of biocultural approaches to interpersonal violence. A public lecture on this topic will also be presented at a meeting of the Asiatic Society in December, 2011.

This project was inspired by research that uncovered evidence for leprosy at a post-urban outpost of the Indus Civilization. It is clear that *Mycobacterium leprae* evolved in Africa but the pattern and process of migration out of Africa, and its relationship with human communities since that time has remained a mystery. In 2009, Dr. Schug described skeletal evidence for leprosy at the village of Balathal in the Chalcolithic layers dated to 2000 B.C. The presence of leprosy at an Indus outpost in Rajasthan around 2000 B.C. indicates that the disease was present in Indus communities by the end of the urban phase and suggests that other skeletal series from the Indus Civilization should be examined for evidence of the disease. In 2011, she received a Fulbright-Nehru Senior Research Fellowship to examine pathological conditions in the skeletal material from Harappa and Kalibangan. She also collected samples for aDNA analysis of the Balathal specimen, which will be sent to Helen Donoghue at University College London for analysis. Results from this project will tell us whether leprosy was known at one of the largest cities in the Indus civilization. If present, the burial treatment and circumstances surrounding the death of individuals affected by infectious diseases will provide important clues about life, death, and even ideological circumstances during the Indus Civilization.

Dr. Schug also has a forthcoming book entitled, "Bioarchaeology and Climate Change: a view from South Asian prehistory" (University Press Florida), which describes the results of her Deccan Chalcolithic Bioarchaeology Project. Dr. Schug has a longstanding interest in understanding how past populations adapted to life in the semi-arid, monsoon climate of India and particularly in understanding human responses to climate uncertainty and changing environmental circumstances in the past and the relative success and failure of those strategies.

In the second millennium B.C., hundreds of small communities were established in west-central India. This period, the Deccan Chalcolithic, was a time of successful adaptation to the semi-arid climatic circumstances of the peninsula. People grew drought-resistant barley and wheat, kept cattle, sheep and goats, and maintained hunting and foraging traditions. Their communities were prosperous, populations were growing, and regional centers began to form. After 1000 years, the majority of these small farming villages and their regional centers were abandoned. One village, Inamgaon, persisted into a phase that became known as the Late Jorwe (1000-700 B.C.). The skeletal populations from this and other Chalcolithic communities provide an opportunity for us to understand what changes occurred around 1000 B.C. that precipitated the collapse of so many settlements? What affect did these changes have on the human populations? How did Inamgaon persist where so many other communities failed? Why was this site too eventually abandoned?

Climate change is often invoked as an explanation for culture change in South Asia. Because of the dramatic impact of the monsoon system on human communities, it is expected that climate change is the impetus when a way of life ends. Although archaeologists suggested climate change was responsible for the demise of the Deccan Chalcolithic period, based on early paleoclimate studies in the

1970's and 1980's, a synthesis of recent paleoclimate research demonstrates that the semi-arid climate of west-central India was already well established when these communities were founded. While large-scale climate changes do not appear to have been responsible, development of unsustainable agricultural practices to feed the growing populations of the Early Jorwe phase (1400-1000 B.C.) may have contributed to environmental change and the eventual collapse of all these settlements.

In this book, Dr. Schug takes a biodemographic approach to the question of how life changed in the Late Jorwe and what led to the eventual collapse of Inamgaon. This approach recognizes the link between growth of populations and growth of individuals. Demographic and pathological profiles for Deccan Chalcolithic populations suggest that the Early Jorwe was a stressful time at Inamgaon. However, the collapse of a major portion of the subsistence system at the end of the Early Jorwe and the abandonment of many sites in this region after 1000 B.C. left the Late Jorwe population even more stressed by higher fertility, infant mortality rates and an increase in the proportion of emaciated children. These profiles are consistent with a population that is struggling to maintain itself until emigration and poor circumstances finally lead to collapse.

Thus this book uses new methodological approaches to skeletal populations and outlines a new model for understanding this period of Indian prehistory. The book also challenges South Asian archaeology to move beyond a rote application of the climate change paradigm for understanding prehistoric populations in India. When human communities are examined in the context of a sustained semi-arid climate throughout the latter part of the Holocene, a more complex view of past people will emerge.

The book will be published in August, 2011 in the book series entitled "Bioarchaeological Interpretations of the Human Past: Local, Regional, and Global Perspectives" (Clark Larsen, series editor).

Recent Publications

Note there is a new journal that will be of interest to bioarchaeologists – **International Journal of Paleopathology**. This journal is available through Science Direct – Palaopathology Association members will already have received access to this but your library may also have online access.

Bedford, S., Spriggs, M., Buckley, H., Valentin, F., Regenvanu, R., & Abong, M. (2010). Un cimetière de premier peuplement: le site de Teouma, Sud Efate, Vanuatu/A cemetery of first settlement: Teouma, South Efate, Vanuatu, in Sand, C., & Bedford, S. (eds), *Lapita: Ancêtres océaniens/Oceanic ancestors*. Paris: Somogy Editions d'Art/Musée du Quai Branly, 140–161.

Bedford, S., Spriggs, M., Buckley, H., Valentin, F., and Regenvanu, R., (2009). The Teouma Lapita site, South Efate, Vanuatu: a summary of three field seasons (2004-2006) in: Sheppard, P., Thomas, T., Summerhayes, G. (eds.), *Lapita: Ancestors and Descendants*. New Zealand Archaeological Association Monograph 28, pp. 215-234.

Buckley, H.R. (2011) Epidemiology of gout: Perspectives from the past. *Current Rheumatology Reviews*. 7(20): 106-113.

Cox, K., Bentley, N., Tayles, H.R., Buckley, C.G., Macpherson, M.J., Cooper (2011). Intrinsic or extrinsic population growth in Iron Age northeast Thailand? The evidence from isotopic analysis. *Journal of Archaeological Science*. 38: 665-671.

- Domett KM, O'Reilly DJW, and Buckley H, R. (2011). Bioarchaeological Evidence of Conflict in Iron Age, Northwest Cambodia. *Antiquity* 85 (328): 441-458.
- Halcrow, S. E. and N. Tayles (2011). The bioarchaeology of children and childhood. S. Agarwal and B. Glencross (eds) *Social Bioarchaeology* (Blackwell Studies in Global Archaeology). Oxford: Wiley-Blackwell. 333-360.
- Halcrow, S. E., N. Tayles, N. Pureepatpong and K. Boonlop (2011). Thailand/ประเทศไทย. N. Márquez-Grant and L. Fibiger (eds). *The Routledge Handbook of Archaeological Human Remains and Legislation: an international guide to laws and practice in the excavation, study and treatment of archaeological human remains*. 623-631.
- Halcrow, S. E. and N. Tayles (2010). "A case of talon cusp in a deciduous canine from prehistoric Southeast Asia" *International Journal of Osteoarchaeology*. 18: 240-247.
- Halcrow, S. E. and N. Tayles (2010). "The archaeological infant in biological and social context: A response to Mike Lally and Traci Ardren. Little Artefacts: Rethinking the constitution of the archaeological infant" *Childhood in the Past*. 3: 123-130.
- Petchey F, Spriggs M, Leach F, Seed M, Sand C, Pietrusewsky M, Anderson K. (2011). Testing the human factor: radiocarbon dating the first peoples of the South Pacific. *Journal of Archaeological Science* 38:29-44.
- Pietrusewsky M. (2010). A multivariate analysis of measurements recorded in early and more modern crania from East Asia and Southeast Asia. *Quaternary International* 211: 42-54.
- Pietrusewsky M, Douglas MT, Swift M, Harper R, Fleming MA. (2011). An assessment of health and lifestyle among prehistoric Chamorro from Tinian Island in the Northern Mariana Islands. *American Journal of Physical Anthropology* S52:238-239.
- Pietrusewsky M. (2010). A multivariate analysis of cranial measurements: Fijian and Polynesian relationships. In: Banik SD, editor. *Research in physical anthropology: essays in honor of Prof. L.S. Penrose*. Mérida, Yucatán: Unas Letras Industria Editorial. p 37-66.
- There is a long history of studies in physical/biological anthropology that have focused on Polynesian origins using cranial variation. This chapter begins with a brief history of multivariate statistical procedures including Pearson's Coefficient of Racial Likeness (C.R.L.) and Penrose's Size and Shape statistics, precursors to more advanced multivariate procedures such as Mahalanobis' D^2 . A few examples of the application of these earlier statistical procedures to craniometric data for understanding the population history of the Pacific are given. The main focus of this chapter is the application of applying stepwise discriminant function analysis and Mahalanobis' D^2 to 19 cranial measurements recorded in male crania from site VL 16/1 at Sigatoka, Fiji (1820 ± 90 BP) and 32 additional near modern cranial series from the Pacific and Asia for understanding the population history of this region. The results of this analysis indicate that Sigatoka crania are closest to other Melanesian (e.g., Fiji, New Caledonia, Loyalty Islands, and Vanuatu) cranial series suggesting extensive contact between Fiji and geographical island Melanesia had already occurred by the third century A.D.*
- Scott, R. and H.R. Buckley (2010). Biocultural Interpretations of Trauma in Two Prehistoric Pacific Island Populations from Papua New Guinea and the Solomon Islands. *American Journal of*

Physical Anthropology. 142: 509-518.

- Scott, R., Buckley, H.R., Spriggs, M., Valentin, F., Bedford, S (2010). Identification of the first reported Lapita cremation in the Pacific Islands using forensic, contemporary, and archaeological evidence. *Journal of Archaeological Science*. 37 (4): 901-909.
- Shaw, B.J., H.R. Buckley, Summerhayes, G., Anson, D., Valentin, V., Mandui, H., Stirling, C. and M. Reid. (2010) Migration and mobility at the Late Lapita site of Reber-Rakival (SAC), Watom Island using isotope and trace element analysis: A new insight into Lapita interaction in the Bismarck Archipelago. *Journal of Archaeological Science*. 37 (3): 605-613.
- Tayles, N. and S. E. Halcrow (2011). New Zealand/Aotearoa. N. Márquez-Grant and L. Fibiger (eds). *The Routledge Handbook of Archaeological Human Remains and Legislation: an international guide to laws and practice in the excavation, study and treatment of archaeological human remains*. 647-655.
- Tilley, L., Oxenham, M.F. (2011) Survival against the odds: Modeling the social implications of care provision to seriously disabled individuals. *International Journal of Paleopathology*. 1: 35-42. doi:[10.1016/j.ijpp.2011.02.003](https://doi.org/10.1016/j.ijpp.2011.02.003)
- Valentin, F., Bedford, S., Buckley, H.R., Spriggs, M. (2010) Lapita burial practices: Evidence for complex body and bone treatment at the Teouma cemetery, Vanuatu, Southwest Pacific. *Journal of Island and Coastal Archaeology*. 5(2): 212-235..
- Valentin, F., H.R. Buckley, E., Herrscher, R., Kinaston, S., Bedford, M., Spriggs, S., Hawkins, K., Neal. Lapita subsistence strategies and food consumption patterns in the community of Teouma (Efate, Vanuatu). *Journal of Archaeological Science*. 37: 1820-1829 (2010).
- Valentin, F., Bedford, S., Spriggs, M., et Buckley, H., (2009). Une analyse diachronique des pratiques funéraires préhistoriques du centre du Vanuatu. *Journal de la Société des Océanistes*. 128(1): 39-52.
- Valentin F., Bedford S., Buckley H., and Spriggs M., (2010). Inhumations, exhumations and bone treatment in a Lapita community as reflected at the Teouma burial ground, Vanuatu. *Journal of Island and Coastal Archaeology*, 5 (2): 212-235.
- Valentin F., Spriggs M., Bedford S., and Buckley H., (2011). Vanuatu mortuary practices over three millennia: Lapita to the early Contact period. *Journal of Pacific Archaeology*, 2(2) (in press).
- Valentin F., Rolland N., (2011). Marquesan Trophy Skulls: Description, Osteological Analyses and Changing Motivations in the South Pacific. In M. Bonogofsky (ed.), *The Bioarchaeology of the Human Head: Decapitation, Deformation, and Decoration* University Press of Florida, Gainesville, pp. 97-121.

In press papers (or early view)

- Bedford, S., H. Buckley, F. Valentin, N. Tayles and N. F. Longga. (in press) Lapita burials, a new Lapita cemetery and Post-Lapita burials from Malakula, northern Vanuatu, Southwest Pacific. *Journal of Pacific Archaeology*.
- Bulbeck, D., O'Connor, S. (2011) The Watinglo mandible: A second terminal Pleistocene Homo sapiens fossil from tropical Sahul with a test on existing models for the human settlement of the region. *HOMO-J.Comp.Hum.Biol.*, doi:10.1016/j.jchb.2010.10.002
- This article analyses the mandible dated to c. 10,000 years ago from the Watinglo rockshelter on the north coast of New Guinea. The mandible's size and morphology point to a male sex. After allowing for differences in sex, it is similar to the c. 18,000 year old female mandible from the Liang Lemdubu rockshelter on the Aru Islands, dated to a time when the Aru Islands were connected to New Guinea. Both Watinglo and Liang Lemdubu evince smaller molars, smaller mandible size and a slower rate of tooth wear than coeval mandibles from Kow Swamp and Coobool Creek in southeastern Australia. The article concludes the harsh, arid conditions experienced in southeastern Australia between c. 20,000 and 10,000 years ago, which did not affect the New Guinea region to anything like the same degree, were responsible for the marked dental attrition experienced by Aboriginal people at that time in southeastern Australia and selected for the large molar size and mandible size and other 'robust' morphological features observed on the Kow swamp/Coobool Creek fossil series.*
- Cekalovic, H, Domett, K and Littleton, J. (in press). Australia. J. Buikstra and C. Roberts (eds) *History of Palaeopathology Pioneers*. Oxford: Oxford University Press.
- Domett KM, and Buckley H, R. (in press accepted November 2010). Large Lytic Cranial Lesions: a differential diagnosis from Pre-Angkorian Cambodia. *International Journal of Osteoarchaeology*.
- Domett, KM, Newton J, O'Reilly DJW, Tayles N Shewan L, Beavan N. (in press, accepted January 2011) Cultural modification of the dentition in prehistoric Cambodia. *International Journal of Osteoarchaeology* DOI: 10.1002/oa.1245 (early view)
- Halcrow, S. E. and N. Tayles (in press). Human diversity in mainland Southeast Asia: a view from bioarchaeology. N. Enfield and J. White (eds) *Dynamics of human diversity in mainland Southeast Asia*. Wenner-Gren International Symposium Series. Australian National University, Canberra: Pacific Linguistics.
- King, C.L., Tayles, N., McGoverin, C.M. and Gordon, K.C. (2011). Re-examining the chemical evaluation of diagenesis in human bone apatite. *Journal of Archaeological Science* doi:10.1016/j.jas.2011.03.023
- Matsumura H, Domett KM, and O'Reilly DJW. (in press accepted 2010). On the Origin of Pre-Angkorian Peoples: Perspectives from Cranial and Dental Affinity of the Human Remains from Iron Age Phum Snay, Cambodia. *Anthropological Science*.
- Robb KF, HR Buckley, M Spriggs and S Bedford. (in press) Cortical Index of three prehistoric human Pacific island samples. *International Journal of Osteoarchaeology*. DOI: 10.1002/oa.1205.
- Tayles, N., S. E. Halcrow and N. Pureepatpong (in press). Southeast Asia. J. Buikstra and C. Roberts (eds) *History of Palaeopathology Pioneers*. Oxford: Oxford University Press.

Valentin, F., M. Spriggs, S. Bedford, H. Buckley (in press). Vanuatu Mortuary Practices over Three Millennia: Lapita to the Early European Contact Period. *Journal of Pacific Archaeology*.

New Books

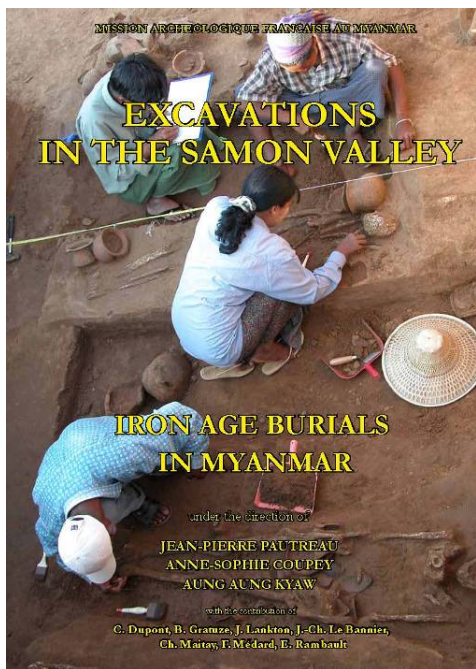
- **MAN BAC: THE EXCAVATION OF A NEOLITHIC SITE IN NORTHERN VIETNAM**

The Biology. (2010) Edited by Marc F. Oxenham, Hirofumi Matsumura and Nguyen Kim Dung. Terra Australis Vol 33, The Australian National University e press.

This monograph focusing on the biological remains from the site of Man Bac including a number of chapters on the human skeletal remains – demography, paleopathology, DNA, cranio-morphology, dental morphology and limb bone morphology - is now available online as a downloadable PDF document http://epress.anu.edu.au/terra_australis/ta33/pdf/whole.pdf. To maintain a reasonable file size the figures are not as sharp as they could be. The monograph will be available as a high quality paper back for purchase very soon.

- **EXCAVATIONS IN THE SAMON VALLEY. IRON AGE BURIALS IN MYANMAR**

447 pages under the direction of J.-P. PAUTREAU, A.-S. COUPEY, AUNG AUNG KYAW with the contribution of C. Dupont, B. Gratuze, J. Lankton, J.-Ch. Le Bannier, Ch. Maitay, F. Médard and E. Rambault.



This volume is the monograph concerning digs carried out on the burial sites of Ohh Min, Htan Ta Pin, Nyaung Gon, Hton Bo and Ywa Gon Gyi between 2005 and 2010. It associates an exhaustive description of all graves explored (methods of burial and accompanying grave goods) with the detailed inventory of all remains found on the sites. Syntheses and specialised analyses carried out in laboratory conditions complete the data. They enable us to put forward theories concerning the evolution of cultures in the River Samon basin during the Iron Age, demonstrating their integration and their originality within the neighbouring groups in South-East Asia.

With the help and support of the Archaeological Commission of the French Ministry for Foreign Affairs, the Myanmar (previously Burma) Archaeological Mission led by Jean-Pierre Pautreau (CNRS Research Director) and assisted by Anne-Sophie Coupey, brings together French researchers and Burmese archaeologists from the Archaeological Department of Mandalay, led by Aung Aung Kyaw (Assistant Director).

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Conference Details

PAPERS PRESENTED AT RECENT CONFERENCES
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- *OIHRN conference, Dunedin, New Zealand 2010 (Otago International Health Research Network) (from Hallie Buckley)*

Dr Buckley chaired a bioarchaeology session at the Network conference held in Dunedin in November. The session included presentations by Associate Professor Nancy Tayles, Dr Sian Halcrow, Dr Hallie Buckley and PhD candidate Ms Angela Clark. Members of this Network include clinicians, researchers and health workers from Otago University who conduct research on health overseas. The guest luminary who delivered the Keynote Address of the meeting was Professor Brian Greenwood from the London School of Hygiene and Tropical Medicine best known for his contributions to Malaria prevention research.

Ms Angela Clark won the prize for best student presentation of the meeting! The judge for the best student presentation was Professor Greenwood.

- *Palaeopathology Association meeting in Vienna, Austria, August 2010. (from Hallie Buckley)*

The meeting was attended by Dr Hallie Buckley, Ms Aimee Foster, Dr Rebecca Kinaston and Ms Angela Clark. All participants presented podium papers to the largest of the European Palaeopathology Association meetings yet. Nearly 300 registrants attended the meeting. Ms Angela Clark won the prize for the best podium presentation at this meeting also!

- TESTING THE RELATIONSHIP BETWEEN SEXUAL DIMORPHISM AND HEALTH STATUS IN EARLY PREHISTORIC SOUTHEAST ASIA.
Angela Clark, Nancy Tayles, S. Halcrow
- DIET AND HEALTH ON A POLYNESIAN OUTLIER: A STABLE ISOTOPE AND OSTEOLOGICAL ANALYSIS OF A PREHISTORIC COMMUNITY FROM TAUMAKO, SOLOMON ISLANDS.
Rebecca Kinaston, Hallie Buckley, Andrew Gray, Ken Neal
- THE PEOPLE OF TEOUMA, VANUATU: QUALITY OF LIFE IN A 3000 YEAR OLD COMMUNITY FROM THE PACIFIC ISLANDS.
Hallie Buckley
- THE DIVISION OF LABOUR IN SOUTHEAST ASIA AND THE PACIFIC ISLANDS.
Aimee Foster, Hallie Buckley, Nancy Tayles

These abstracts and conference programs are often published as part of the Paleopathology newsletter. Details on how to join the Paleopathology Association to receive the newsletters can be found at: [HTTP://WWW.PALEOPATHOLOGY.ORG/NEWS.HTML](http://www.paleopathology.org/news.html)

• *Australasian Society of Human Biology (from Sian Halcrow and Nancy Tayles)*

The 24th Annual ASHB conference, organised by Associate Professor Judith Littleton and Drs Bruce Floyd and Nick Malone, was held at the University of Auckland from the 28th of November-2nd December 2010. A number of papers at the conference included bioarchaeology research in Southeast Asia and the Pacific:

- The tragic consequences of a Neolithic Vietnamese breech presentation, by Anna Willis & Marc Oxenham
- The micro-evolutional history of Southeast Asia: Two layer model in the context of Northern Vietnam, by Hirofumi Matsumura & Marc Oxenham
- Burial patterns and distribution at Ban Non Wat Thailand: 2007 to present, by Jennifer Newton, Kate Domett and Nigel Chang
- Newborn twins from prehistoric Southeast Asia, by Siân Halcrow & Nancy Tayles
- The effect of agriculture on human biology of late prehistoric Southeast Asians, by Nancy Tayles and Siân Halcrow
- Dental health and the intensification of agriculture at Ban Non Wat, Thailand: a research proposal, by Stephanie Shkrum
- Bio-mortuary insights from metal period Nagsabaran, Luzon, Philippines, by Marc Oxenham, Anna Willis and Hsiao-Chun Hung

- The people of Ohaea: a prehistoric Maori occupation and burial site on the Manukau Harbour, by Beatrice Hudson and Matthew Campbell

The abstracts from the 23rd (Rottnest Island, Western Australian, 2009) have been published in HOMO - *Journal of Comparative Human Biology*. Volume 61, Issue 3, Pages 204-222 (2010)

• **80th Annual Meeting of the American Association of Physical Anthropologists**

Minneapolis, MN, April 13 - 16, 2011.

Abstracts are available from this website <http://physanth.org/annual-meeting/2011> but some of the following may be of interest.

- Dr Siân Halcrow recently travelled to the United States of America on a New Zealand Fulbright Travel Award where she presented her research on SE Asian bioarchaeology to colleagues at the University of Hawaii-Manoa, and the University of Oregon in Eugene, and also attended conferences in Minneapolis. During her trip, Dr Halcrow met with Southeast Asian bioarchaeologists at the Faculty of Anthropology, University of Hawaii-Manoa, including Professor Michael Pietrusewsky and Dr Rona Ikehara-Quebral, and presented a seminar and lecture. She also met with Emeritus Professor John Lukacs, at the University of Oregon in Eugene and presented a seminar.

She gave a podium presentation at the 80th annual meeting of the American Association of Physical Anthropology with Associate Professor Nancy Tayles, entitled “Testing the Neolithic Demographic Transition: a case study from Southeast Asia”.

- Pietrusewsky, M¹., Toomay Douglas, M¹., Swift, M²., Harper, R². and Fleming, M.A². (2010). An assessment of health and lifestyle among pre-1521 Chamorro from Saipan, Commonwealth of the Northern Mariana Islands. *American Journal of Physical Anthropology* S50:189

¹Department of Anthropology, University of Hawaii at Manoa, ²Swift and Harper Archaeological Resource Consulting, Saipan.

Earlier investigations of health and disease in the Mariana Islands suggested the possibility that inter-island differences may be related to differences in environment and/or resource availability and natural disasters on smaller islands. Utilizing dental and skeletal indicators of health recorded in prehistoric skeletons from Tinian, the third smallest island of the southern arc group, this new study focuses on the health and lifestyle of pre-1521 Chamorro living on this island. The indicators of health investigated include cribra orbitalia (CO), linear enamel hypoplasia (LEH), stature, trauma, infection, and dental disease including AMTL, caries, abscessing, periodontal disease, and attrition. Comparisons between Tinian and Saipan Island reveal significantly lower frequencies of LEH, AMTL, and periodontal disease in the Tinian series. When the skeletal series from Tinian and Saipan are compared to those from Guam, the largest of the Mariana Islands, significantly higher frequencies of LEH, caries, and calculus were observed in the Guam skeletons suggesting more childhood stress and oral-dental disease in this series. No significant differences were found for the Mariana Islands skeletons for AMTL, abscessing, limb bone fractures, spondylolysis, infection, or stature. The frequencies of LEH, AMTL, caries, abscessing, and periodontal disease are the lowest in the Tinian skeletons suggesting that the prehistoric inhabitants of Tinian were subjected to less stress levels than those living on the larger islands of Saipan and Guam. The significantly higher prevalence of dental attrition and betel stained teeth observed in the Tinian and Saipan series and other differences are examined to explain these results.

Two other poster/papers were presented last year:

Kenyhercz MW, Pietrusewsky M, Damann F, Ousley S. 2010. Borders and boundaries: a clash between culture and biology in Southeast Asia. *American Journal of Physical anthropology* S50:140-141.

Kenyhercz MW, Pietrusewsky M, Damann F, Ousley S. 2010. Craniometric Variation within Southeast Asia. Paper presented at the American Academy of Forensic Sciences Annual Scientific Meeting, Seattle, Washington, February 22-27, 2010

• ***Annual Meeting of the Paleopathology Association***
Minneapolis, MN, April 12 -13, 2011.

Dr Siân Halcrow also attended the North American Paleopathology Association meeting in Minneapolis, where she presented a poster on behalf of PhD student, Angela Clark and Associate Professor Nancy Tayles, on sexual dimorphism and health change during the intensification of agriculture in Southeast Asia.

Other titles that may be of interest to Southeast Asia and Pacific researchers include:

- INDICATORS OF PHYSIOLOGICAL STRESS IN EARLY PREHISTORIC SOUTHEAST ASIA DURING AGRICULTURAL INTENSIFICATION (A Clark, S Halcrow, N Tayles)
- DENTAL PATHOLOGIES IN LB1 FROM LIANG BUA CAVE, FLORES, INDONESIA (M Henneberg)
- LIANG BUA MANDIBLES, MAXILLA, AND DENTITION: DISTINGUISHING GNATHIC PATHOLOGY FROM NORMAL REGIONAL VARIATION IN FLORES POPULATIONS, PAST AND PRESENT (R Eckhardt)
- A CASE OF DILACERATION IN A HONG KONG SKELETAL COLLECTION: POSSIBLE CAUSES AND EXPLANATIONS (WNJ Chan, G Tipoe,)
- EVIDENCE OF TRIBAL WARFARE AMONG THE ANGA OF PAPUA NEW GUINEA – TRAMUA PATTERNS (RG Beckett, AJ Nelson)

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[HTTP://WWW.PALEOPATHOLOGY.ORG/NEWS.HTML](http://www.paleopathology.org/news.html)

UPCOMING CONFERENCES

• **First Notice and Invitation : 2nd Southeast Asian Bioarchaeology Conference:**

Organising Committee: Nancy Tayles and Sian Halcrow (University of Otago), Kate Domett (James Cook University), Associate Prof. Kamoltip Brown and Dr Panya (Khon Khaen University), Prof. Rasmi Schoocondej, (Silpakorn University, Bangkok).

It has taken too long (since 2004 in fact, when the first Conference was held in Siem Reap, Cambodia) but we finally have a venue for a second South East Asian Bioarchaeology Conference. This will be held at Khon Kaen University in northeast Thailand on 26-27 January 2012. KKU is one of the leading Universities in Thailand, and they have very good facilities and resources, including many skeletal specimens, that we could use during a workshop, as well as lecture theatres, space for posters and catering and accommodation.

We are planning to have a similar two-day event to the 2004 Siem Reap Conference, with the philosophy being that this is primarily for local SE Asians, to encourage the development of local enthusiasm and expertise in the field of Bioarchaeology, rather than being a conference for foreign researchers to talk mainly to each other. The first day will be invited talks, each with a theme, together with an open poster session. The second day will be a workshop, with a maximum of 30 students and young people from Thailand, Cambodia, Laos, Vietnam (and possibly Burma/Myanmar).

We invite expressions of interest in attending the Conference, and contributions to the poster session. Please email nancy.tayles@otago.ac.nz if you are interested in participating and you will be advised of the details in due course, including requirements for poster production.

We also invite applications from students and early career archaeologists from the countries listed above to attend and participate in the Workshop. This will provide an opportunity to learn some basic skills in skeletal analysis, as well as an opportunity to meet archaeologists from other countries. Our aim is to provide the opportunity for young people to learn about the potential of human skeletal remains as a direct source of information about people in the past, and to encourage those who might be captivated to consider study in the field of bioarchaeology at a postgraduate level. We would expect to pay travel, accommodation and food costs for workshop participants. If you wish to apply to participate, please arrange for your supervisor or an academic staff member from your institution to apply on your behalf, with a letter of support outlining how the workshop would be of value to you. Email to sian.halcrow@otago.ac.nz



Participants at the 1st Southeast Asian Bioarchaeology Conference, Siem Reap, Cambodia 2004

- *Australasian Society of Human Biology*

This year's ASHB conference is to be held at the Australian National University in Canberra in Australia from the 27th November to the 1st December. The conference flyer is included at the end of this newsletter.

- *81st Annual Meeting of the American Association of Physical Anthropologists (11-14th April) and the Paleopathology Association (9-11th April)*

These major events on the biological anthropology calendar will be held next year (2012) in Portland, Oregon, USA at the Portland Hilton -Towers & Conference Center. The Local Arrangements Committee is led by Professor Emeritus John Lukacs (jrlukacs@uoregon.edu) from the Department of Anthropology, University of Oregon, Eugene, OR 97403.

<http://pages.uoregon.edu/anthro/>

Information will also eventually be posted at <http://physanth.org/annual-meeting> and <http://www.paleopathology.org/meetings.html>

- *European Association of Paleopathology*

This biennial meeting will be held next in Lille, France in 2012.

<http://www.paleopathology.org/meetings.html>

Graduate Student Projects

HONOURS and MASTERS PROJECTS

Those recently completed...

- Atsuko Hayashi, University of Hawaii-Manoa, December 2010

MA in Anthropology

Supervisor: Professor Mike Pietrusewsky

Subject: *A Modified Anatomical Method for Estimating Japanese Stature from the Calcaneus and Talus*

The primary objective of this thesis is to increase the accuracy of measurements for estimating stature using the anatomical method. This method represents a visual and repeatable approach, with fewer errors than Fully's original method. Currently, many archaeological and anatomy collections lack stature records, slowing the development not only of stature estimation regression equations, but also comparative studies such as ancestral and sex differences across populations.

Since stature estimation regression equations utilizing calcaneus and talus are currently unavailable for Asian populations, living stature was estimated using this new anatomical method and regression equations were constructed as group-generic equations. This new approach demonstrates that, in the

absence of long bones, the calcaneus and talus, which have more linear relationship than long limb bones to stature across groups, can be useful in estimating stature.

- Caitlin Evans, James Cook University, Townsville, Australia.

BA (Hons), November 2010

Email: caitlin.evans@my.jcu.edu.au

Supervisor: Dr Kate Domett, Dr Nigel Chang

Subject: *Joints of Prehistoric Thailand: Evidence of Lower Limb Osteoarthritis in the Neolithic and Bronze Age at Ban Non Wat.*

Ban Non Wat is a prehistoric mounded site located in the Upper Mun River Valley, upon the Khorat Plateau in northeast Thailand. The site is the location of an extensive eight year archaeological investigation, initially under the *Origins of Angkor* (2002-2007) project and then for a further three years under the *Resilience and Opportunity in Ancient Thailand* project. The two projects have produced to date 699 burials, ranging from pre-agriculturalists (1750 - 1250 BC) to late Iron Age inhabitants (300 – 500 BC). This thesis examined the lower limb joints of 138 adult burials from the Neolithic and Bronze Age, mapping the joint condition and prevalence of osteoarthritis. The central aim of this thesis was to examine patterns of osteoarthritis within the major lower limb joints (hip, knee, ankle, and feet) from the Neolithic and Bronze Age Ban Non Wat skeletal remains in reference to wider Southeast Asian osteoarchaeology and relevant medical research.

It was hypothesized that osteoarthritis levels would decrease over time as social, technological and subsistence practices became more complex and the inhabitants of Ban Non Wat were better able to exploit their surroundings with more efficiency. Additionally, it was hypothesized that osteoarthritis profiles from similar natural and cultural environments would be similar, while those from contrasting natural and cultural environments would be dissimilar.

The first hypothesis was refuted, as the results have indicated a consistent pattern of joint involvement during the Neolithic and Bronze Age periods at Ban Non Wat. This is a contrast to the clear changes in burial practice over time at Ban Non Wat. The only statistically significant trend noted was an increase in male middle aged foot osteoarthritis over time. This is likely to be associated with the increasing sexual division of labour and high level of stress upon male knees and feet during the Bronze Age. Chi squared tests demonstrated the positive effect of age on osteoarthritis, which is not surprising given past research on the topic.

The consistency of osteoarthritis patterns over time cannot be taken as direct evidence of an invariable culture given the complexity of osteoarthritis and culture itself. However, it certainly implies that substantial changes in the type of repetitive use and/or trauma to joints did not occur to such a severity as to alter osteoarthritis patterns from the Neolithic to the Bronze Age.

A comparison with wider Thailand demonstrates a consistent pattern of lower limb joint involvement by geographic zone (southwest, northeast, and far northeast) which supports the second hypothesis. These patterns may indicate a genetic homogeneity within sub-regions in Thailand, but there are contrasting methodologies employed by different osteoarchaeologists working in Southeast Asia. These findings would appear to support the view that geographical environment has a relationship with the pattern of lower limb osteoarthritis in Thailand and confirms the need for a consistent methodological approach to studying osteoarthritis in prehistoric populations.

- Nathan Harris, University of Otago, Dunedin, New Zealand.
MSc, 2010

Email: NathanHarris@anatomy.otago.ac.nz

Supervisor: Dr Nancy Tayles

Subject: *Disposing of the Dead: An Investigation into Prehistoric Mortuary Practices During the Neolithic and Bronze Ages at Ban Non Wat, Thailand*

Ban Non Wat is a prehistoric mounded site located in the upper Mun Valley of Northeast Thailand. It was excavated over five years under the *Origins of the Civilization of Angkor* research project, which uncovered 635 human burials ranging from pre-agriculturalists to Late Iron Age inhabitants. This thesis examined 244 adult burials in nine mortuary phases from the Neolithic and Bronze Age, applying an *anthropologie de terrain* approach. The main aim of the thesis was to examine the mortuary practices used in each mortuary phase and compare these practices over time.

Anthropologie de terrain is a taphonomically based methodology used to reconstruct past funerary practices. Upon careful examination of skeletal elements within a grave it is possible to determine; whether a burial was primary in nature or occurred over multiple episodes (burial type), the original position of the cadaver within the grave (burial position), and what kind of container an individual was interred in (burial context). An *anthropologie de terrain* approach was adapted to allow the analysis of a large number of burials based on photographs and field drawings. Iron Age burials were excluded from the research because of their often disturbed and fragmentary appearance.

Two hypotheses were put forth: that mortuary practices would change over time as social, technological, and subsistence practices became more complex; and that mortuary practices would be linked to social identity. The aspects of social identity examined were sex, age, wealth, and the location of the burial as it has been suggested by Higham (pers comm.) that the grouping of individuals at the site may represent family clusters. By examining links between mortuary practices and social identity it was possible to assess the suitability of the mortuary practices examined as indicators of different modes of social organisation.

An increase was found in the variety of mortuary practices used over time, especially burial context, which showed the most variety at the end of the Bronze Age. This differed slightly from findings at the nearby site of Ban Lum Khao (Willis and Tayles, 2009), where Late Bronze Age individuals were interred in one context.

Links between mortuary practices and social identity were not found for the Neolithic or Bronze eras. The practice most likely to show conclusive results was burial context, which had relatively large sample sizes. However, no correlations were found between burial context and any aspect of social identity investigated, suggesting two possible interpretations. Firstly, burial context is not a reliable indicator of social status, as there were no demonstrable links between context and wealth. Secondly, an unidentified variable other than sex, age, location, or wealth influenced the choice of container. It was proposed that this variable was the season of death, with busy periods coinciding with the rice harvest necessitating less elaborate and time consuming burial practices.

DOCTORAL PROJECTS

Those underway...

- Chin-hsin (Kathy) Liu, Department of Anthropology, University of Florida, Gainesville
chliu@ufl.edu

Dissertation Advisor: Dr. John Krigbaum

Subject: *Diet and health assessment of Metal Age populations in central Thailand: Evaluating social differentiation using paleopathology and stable isotope ratio analysis.*

Central Thailand has a long period of human occupation since prehistoric times and later became the cradle of state formation during later part of first millennium A.D. Its geographic location and abundant metal ores in the Khao Wang Prachan Valley facilitated in the prosperous bronze metallurgy and trade in inland central Thailand. Bronze Age (c.a. 1,500-500B.C.) witnessed various processes leading to enlarged community size, higher population density, and intensified land use. The transition from Bronze to Iron Age (c.a. 500 B.C.-A.D. 500) coincides with, among others, a marked change of social differentiation, as evident in mortuary contexts found in central and northeastern Thailand. During this period, intensified metal working heightened the demand of firewood and thus led to more forest clearing. Population and accessibility of forest dwelling animals as food resources would have been affected by habitat loss. Furthermore, as rice agriculture continued to flourish, the dependence of rice is expected to be higher through time. This research project aims for a regional assessment on the impacts of these cultural-ecological changes, with respect to social status differentiation, on human skeletal health and dietary behavior during the transition from Bronze to Iron Age.

To maximize the output of data from the poorly preserved bones, both paleopathology and light stable isotope ratio analysis are used. Human and faunal skeletal remains from five archaeological sites in inland central Thailand are studied and sampled- Promptin Tai (PTT), Ban Pong Manao (PMN), Non Mak La (NML), ND/KSO (Noen Din/Khao Sai On), and Ban Mai Chaimongkol (BMC). Human skeletal samples from a coastal site Khok Phanom Di (KPD) are incorporated in stable isotope ratio analysis serving as a comparative outgroup.

With generous assistance of personnel in Silpakorn University (Thailand), Thai Fine Arts Department, National Research Council of Thailand, members of the Thai Archaeometallurgical Project, Drs. Sian Halcrow and Nancy Tayles of Otago University, and Departments of Anthropology and Geological Sciences in University of Florida, majority of data collecting and sample analysis are completed as of May 2011. Results should shed lights on human lifeways during the Bronze-Iron Age transition and put central Thailand in a broader regional context of Mainland Southeast Asia.

- Stephanie Shkrum, University of Otago, New Zealand

Supervisors: Associate Professor Nancy Tayles and Dr. Sian Halcrow

The prevailing model of oral health change with agricultural intensification in prehistory posits a deterioration in oral health with the adoption of agriculture because of an increased consumption of a starchy carbohydrate staple. Recent bioarchaeological work in Southeast Asia shows that this model, based mainly on evidence from North America and Europe, may not be appropriate for this region. Rather, the emergence of intensive rice agriculture was a gradual transition not associated with high rates of dental caries. This doctoral project will test this model by assessing oral health of adults in a

large prehistoric skeletal collection from Ban Non Wat, Thailand spanning from the early adoption of agriculture through to the intensification of this process.

- Charlotte King, Durham University

c.l.king@durham.ac.uk

Supervisors: Dr. Alex Bentley & Dr. Una Strand-Viðarsdóttir (Durham University), and Dr. Nancy Tayles (University of Otago)

This research aims to build on the growing body of isotopic data we have from the Upper Mun River Valley of Thailand to gain new insight into the impacts of migration and kinship structures on the growth of social complexity in the region. The study uses strontium, carbon and oxygen isotope analysis of dental enamel from the burials at Ban Non Wat excavated between 2002-2007 under Professor Charles Higham and Dr. Rachanie Thorosat. Samples have been taken from all mortuary phases, spanning the Neolithic through to the Iron Age, giving an insight into changes in migration over time. These data will then be combined with results of dental non-metric and geometric morphometric analysis of crania. These techniques are based on hereditary features and give a genetic signature, thus allowing the identification of individuals who may be genetically related. It is hoped that the combination of these techniques will facilitate the identification of both migrant individuals, and kinship groups within the sample. This will then allow us to draw conclusions on the intrinsic/extrinsic nature of population growth during prehistory in the Upper Mun River valley. It should also shed light on the co-evolution (or lack thereof) of kinship structures and social hierarchy at Ban Non Wat.



Figure: Geometric morphometric data collection.

- Jennifer Newton, James Cook University, Townsville Australia

Supervisors: Drs Kate Domett and Nigel Chang

Subject: *The impact of environmental change on health and migration in prehistoric tropical Southeast Asia.*

This project aims to investigate how human health and mobility changed with environmental change in prehistoric tropical mainland Southeast Asia. This project will be an integral part of two larger, ongoing projects: one led by Chang and Domett (supervisors) that investigates the human response to climate change over the last 4000 years in northeast Thailand (funded by Earthwatch Institute) and a second, ARC funded project, led by O'Reilly, Domett and others, based in northwest Cambodia. This specific PhD project will trace migration and health patterns between communities in ancient Northeast Thailand and Northwest Cambodia (known to have had links in the past) and aims to understand whether these patterns changed along with the climate. Importantly, consideration will be

given to what stresses communities suffered and how they attempted to resolve them in light of environmental change. A better understanding of population movements related to changing patterns of health will also allow an investigation into the movement of disease and parasites in tropical climates. Parallel and interconnected social and environmental conditions will be investigated using a multidisciplinary approach of three streams: biological anthropology, archaeology and environmental science.

More specifically, this research will be broken in to a series of projects leading to a series of publications based around three skeletal samples from three prehistoric sites. The first site is that of Ban Non Wat in northeast Thailand and is important in that it is one of the few sites excavated to date that spans the Neolithic, Bronze Age and Iron Age periods. The other two sites are Phum Sophy and Phum Snay located in northwest Cambodia, both late Iron Age (pre-Angkorian) sites. To date, Cambodia has very few published studies on human skeletal remains from prehistory (Domett and O'Reilly 2009). The series of projects based on these skeletal remains will include a combination of palaeopathology and isotope analyses.

Domett KM, and O'Reilly DJW. 2009. Health in Pre-Angkorian Cambodia: a bioarchaeological analysis of the skeletal remains from Phum Snay. *Asian Perspectives* 48(1):56-78.

Those completed...

- Rebecca Kinaston

Title: "Prehistoric Diet and Health in the Western Pacific Islands".

Degree awarded in 2010

The mode of subsistence of the earliest populations that colonised Remote Oceania, the people associated with the Lapita Cultural Complex, remains a contentious issue and, for many Pacific islands, the extent to which chronologically later prehistoric populations relied upon horticultural products is unknown. The overarching aim of this thesis is to assess the diet and subsistence of six pre-historic Pacific Island skeletal samples to understand the possible health implications of these dietary patterns. This research is the first study focused on analysing variations in diet between the sexes and between age cohorts within prehistoric Pacific Island skeletal samples to assess the possible health implications of potentially culturally moderated food-related practices.

The materials used in this study span 3000 years of Pacific Island prehistory and include four Lapita-associated skeletal samples from Vanuatu (Teouma [n=49], Uripiv [n=5] and Vao [n=4]) and Papua New Guinea (Watom [n=4]) and two skeletal samples that date much later in prehistory (600-400 BP) from Papua New Guinea (Nebira [n=31]) and the Solomon Islands (Taumako [n=158]).

The objectives of this study were to characterise the diet of these six skeletal samples by analysing carbon, nitrogen and sulphur stable isotopes of bone and tooth collagen (the distal root portion of the first molar root, formed from ages 5-9) in conjunction with tooth wear and oral health indicators (caries, calculus, periapical cavities, periodontal disease and antemortem tooth loss) to assess if these methods were comparative or complementary for reconstructing past diet. The second objective used the prevalence of linear enamel hypoplasia (LEH) as a non-specific indicator of stress to assess the health of the skeletal samples. The third objective was to compare the dietary and health profiles of the adults and subadults to assess whether there were differences between survivors and non-survivors. Lastly evidence LEH was compared between the cemetery samples to investigate whether the possible diachronic dietary transitions were associated with a decline in health.

The dietary results indicated that there were temporal variations in diet and subsistence; the chronologically earliest sample, Teouma, practised a broad- spectrum hunting/gathering and marine foraging subsistence and, at the other sites, there was an increase on the reliance of horticultural products over time. The exception to this trend was the skeletal sample from Taumako, which had dietary evidence of a heavy reliance on marine products. Sexual differences in the protein portion of the diet only occurred at Teouma, the chronologically earliest site. The LEH results indicated there was a decline in health over time. At Taumako there were dietary and health differences between the survivors and non-survivors; the non-survivors were consuming less protein and had more evidence of stress than the survivors. At a number of sites, the stable isotope values of tooth collagen indicated that, as children, the adult individuals had consumed more protein from higher trophic levels than as adults. From these data it is suggested that the stable isotope analysis may have over- represented the high protein marine portion of the diet, although it did show evidence of dietary change over time. The dental evidence assisted in the stable isotope analysis of diet, but the consumption of betel nut may have affected the oral health in a number of skeletal samples and therefore could influence the effectiveness of using oral health as a dietary indicator in the Pacific islands. The dietary differences between the sexes observed in the earliest populations may have been a result of 'ranked' social structure of Lapita-associated populations. The later populations may have had culturally-induced dietary differences between males and females but these may have centred around foods that could not be identified by the current analyses because they were of a similar food type, but prepared in a 'special' manner, such as a pudding, making any differences invisible isotopically. The analysis of childhood diets (of the adults who survived) did not follow the dietary patterns observed in modern-day Pacific islands, which document a lower protein diet of children compared to adults. However, the diet of the non-survivors did agree with modern accounts, and this type of diet may have contributed to their early death. The health assessments indicated that there was an increase in stress as populations became more reliant on horticulture, although it is inconclusive as to whether or not this was a result of a decrease in nutritional quality and/or a response to the higher prevalence of infectious disease associated with larger population sizes and increased sedentism.



Australian
National
University

Hosted by the ANU School of
Archaeology and Anthropology

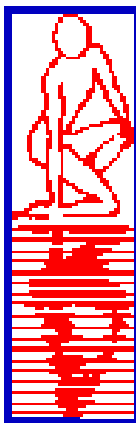
Supported by the ANU College of
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Research Hub

Conference Secretary:

Catherine.Fitzgerald@anu.edu.au

25TH ANNUAL ASHB CONFERENCE

Human Biology: Through the Looking Glass



Australasian Society for Human Biology

<http://school.anhb.uwa.edu.au/ashb/index.html>

Australian National University

27th November to 1st December 2011

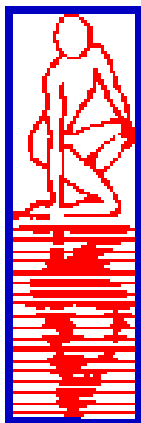


Fellow's Oval, ANU

This year is a big year for the Australasian Society for Human Biology. It is our 25th anniversary and we will be celebrating it at the Australian National University in Canberra. Our theme for this year is *Human Biology: Through the Looking Glass*, and gives an opportunity not only to see what has changed and progressed in the last 25 years, but to look to the future and examine where human biology research is going. We look forward to you joining us in the beautiful surroundings of the ANU in the nation's Bushland Capital.

The Australasian Society for Human Biology, formed in 1987, comprises mostly members from the Australasian region. However, the Society has active members from all around the globe and welcomes all participants in our disciplinary field of study and research, including: modern human biology, medicine, biological anthropology and extending through to primatology and evolutionary biology, as well as bioarchaeology and forensic anthropology.

The Society has a large focus on encouraging and supporting student members and their research, including subsidising the costs of the Annual Conference through reduced fees, conference travel awards and student prizes for the best presentations at the conference.



Australasian Society for Human Biology

<http://school.anhb.uwa.edu.au/ashb/index.html>

Australian National University
27th November to 1st December 2011

25TH ANNUAL ASHB CONFERENCE *Human Biology: Through the Looking Glass*

Registration

We have worked really hard this year to minimise registration costs, especially for students. Registration includes morning tea, lunch and afternoon tea, as well as tea and coffee before the morning sessions. All registrations must be completed online. The link to the registration page will be available on the ASHB website from June 2011.

Registrations close on the 21st November 2011.

Presentation Abstract Submission

All submissions for presentations (oral and poster) must be completed on the Presentation Submission Form and be emailed to the [conference secretary](#). The closing date for submissions is 5pm AEDT, 15th October 2011. Late submissions will only be considered if conference sessions are not full.

Authors of papers not accepted for oral presentation will be given the option of presenting a poster.

Submission forms will be available on the [ASHB Website](#) in June 2011.

Student Prizes**

There are 3 types of student prizes available this year.

Conference Travel Awards: Students who wish to enter their papers for the Conference Travel Awards **must** submit all documentation before close of business AEDT on 30th September 2011. Late student submissions may still be able to present but will not be eligible for Travel Awards. Maximum award is \$500.

Student Presentation Prizes: Prizes will be given for 1st, 2nd and 3rd place in each of the following categories.

Oral Presentation: The best oral presentation from an honours or post-graduate student.

Poster Presentation: The best poster presentation from an honours or post-graduate student.

Minimum prize value in each category:

1st—\$250; 2nd—\$150; 3rd—\$100

**Students must be bona fide honours or post-graduate students in 2011 in order to be eligible for prizes. Please read the entry requirements and guidelines in the [Conference Pack](#) before submitting papers.

	Full Conference		One Day Registration
	Early Bird*	Late	
ASHB Members			
Non-student	\$250	\$350	\$100
Student	\$110	\$210	\$80
Non-Members			
Non-student	\$300	\$410	\$140
Student	\$160	\$260	\$110

**Early Bird registrations end on Friday 30th September 2011.*

Conference Dinner

The conference dinner will be held at University House on 29th November. The dinner will be a two course meal at a cost of \$55 per person. If you intend to attend you must select this option when you register and the cost will be added to your conference fee. Please ensure that if you require a vegetarian meal that you select this option so that we can arrange this for you.

Membership Subscription/Renewal

ASHB membership subscriptions and renewals for 2011 are due. If you register for the conference at Membership rates you **must** complete your subscription/renewal before or at this year's conference. Memberships can be completed online at:

<http://school.anhb.uwa.edu.au/ashb/memberships.html>

Membership Options

There are four types of ASHB Membership:

Full membership: for those actively involved in the research, teaching, or practice of human biology - \$40pa

Associate membership: for those with an interest in the area of human biology - \$15pa

Student membership: for students not in receipt of a full salary - \$15pa

Life membership: one-off payment of \$250



GRADUATE STUDIES

Graduate Studies

The UO Department of Anthropology's graduate program offers Master of Science (M.S.), Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Anthropology. In addition to the graduate program in biological anthropology, the Department of Anthropology also offers graduate degrees with concentrations in archaeology and cultural anthropology.

Prospective Students

For more information, please visit our website. Application guidelines are available at:

<http://pages.uoregon.edu/anthro/academics/graduate/>

Please contact the faculty directly if you have any questions regarding specific research projects and facilities.



AAPA 2012 Information

(April 11 - 14; Portland, OR)

Portland Hilton - Towers & Conference center

Affiliate meetings (April 9 - 11, 2012):

Human Biology Association

Paleopathology Association

Local Arrangements Committee

John Lukacs

(Professor Emeritus) LAC Chair

jrlukacs@uoregon.edu

Tara Cepon
Ed Hagen
Greg Nelson
Josh Snodgrass
Frances White

Steve Frost
Geraldine Moreno
Robert Pastor
Larry Sugiyama



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<http://pages.uoregon.edu/anthro/>



UNIVERSITY OF OREGON



Biological Anthropology

About the Department

We are a medium sized department consisting of 19 faculty members from the subfields of biological anthropology, cultural anthropology and archaeology. Our graduate program is extremely well-regarded and attracts outstanding students from across the nation and around the world. In the most recent study by the National Research Council, the UO Anthropology Department Doctoral Program was ranked among the top 15% of anthropology doctoral programs nationwide.

The Department of Anthropology at UO is distinctive in its integration of the subfields of anthropology via five areas of expertise and focus: Evolution, ecology and environment; Sex, gender and sexuality; Indigenous and minoritized groups; Food, health, and society; Identity, heritage and globalization.

The UO biological anthropology program includes a diverse group of faculty and students who apply an evolutionary perspective to a broad array of topics in human evolutionary biology. These topics include primate behavior and morphology, paleoanthropology, human behavioral ecology, human adaptation, and evolutionary medicine. Our interdisciplinary approach involves collaborations across the anthropological subfields, with researchers across the UO campus and scientists around the world. Some of our campus collaborators include the Museum of Natural and Cultural History (MNCH), the Center for Ecology, the Institute of Cognitive and Decision Sciences and Evolutionary Biology (CEEB), and the Human Physiology department.

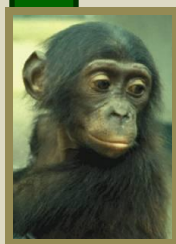


RESEARCH

Ongoing Research Projects

The Shuar Health and Life

History Project is a collaborative research project co-directed by Drs. Larry Sugiyama and Josh Snodgrass. The project focuses on the effects of cultural and economic change on life history tradeoffs and health among the Shuar of Amazonian Ecuador.



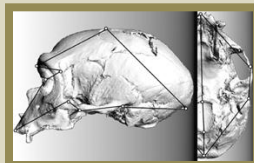
The Lomako Forest Bonobo Project, directed by Frances White, has studied two communities of bonobos in the Democratic Republic of the Congo since 1983. This remote area of polyspecific evergreen lowland rain forest is home to 9 species of primates and has an extensive GPS-mapped trail system,

comprehensive plant and animal identification lists, and infrastructure for long-term field studies.

Research Facilities

The Human Biology Research Laboratory

directed by Dr. Josh Snodgrass, focuses on the development and application of minimally invasive techniques (e.g., dried blood spots and saliva) for assessing health and physiology in population-based research.



The Primate Morphometrics Laboratory, coordinated by Dr. Stephen Frost, has facilities for several types of morphometric techniques and analysis, which are used to quantify different

aspects of biological shape and its variation. It includes a Minolta laser surface scanner (LSS) which builds 3-D surface models, primarily of fossils, bones, and teeth, and facilities for the processing of those models.

The **Primate Osteology Laboratory** is coordinated by Dr. Frances White and houses the UO Comparative Primate Collection. Originally compiled by Dr. Theodore Grand, the lab includes non-human primate (n=600) and mammalian (n=125) skeletal remains.

We have other research facilities, including teaching labs and facilities available to us through archaeology, cultural anthropology, and other UO collaborators

Core Bio Faculty



Dr. Stephen Frost, Associate Professor, is a paleontologist/morphometrician interested in human and primate evolution. His research on late Miocene to Pleistocene East African cercopithecids has focused on describing material from the Afar Region of Ethiopia, and relationships between African cercopithecoid evolution and global climatic change.
Email: sfrost@uoregon.edu



Dr. Josh Snodgrass, Assistant Professor, is a biological anthropologist who specializes in human evolutionary biology. His research focuses on human adaptation to environmental stressors, the influence of economic and cultural change on health, and the evolution of the human diet. He has active research projects in Siberia, Ecuador and the U.S.
Email: jjosh@uoregon.edu



Dr. Larry Sugiyama, Associate Professor, is a cultural anthropologist, evolutionary psychologist and human behavioral ecologist working at the intersection of cultural and physical anthropology, evolutionary biology, behavioral ecology, and cognitive psychology. He is the founder and co-director of the Shuar Health and Life History Project.
Email: sugiyama@uoregon.edu



Dr. Frances White, Associate Professor, is a primatologist and the Director of the Institute of Cognitive and Decision Sciences. Her interests include primatology, primate behavior, primate social evolution, quantitative methods and statistics.
Email: fwhite@uoregon.edu